UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE ADMINISTRATOR

In the Matter of:	:		
Leed Foundry, Inc.	:		
Wade Road	:		
St. Clair, PA 17970,	:		
	:	Docket No.	RCRA-03-2004-0061
Respondent.	:		CWA-03-2004-0061

COMPLAINANT'S INITIAL POST-HEARING BRIEF

Complainant, the Director of the Office of Enforcement, Compliance and Environmental Justice of the United States Environmental Protection Agency, Region III, through counsel, hereby submits this post-hearing brief in the above-captioned matter. On September 30, 2004 Complainant filed a Complaint pursuant to Section 3008(g) of the Resource Conservation and Recovery Act ("RCRA"), *as amended*, 42 U.S.C. § 6928(g), and Section 309(g)(2)(B) of the Clean Water Act ("CWA"), 33 U.S.C § 1319(g)(2)(B). The Complaint contained 13 counts alleging violations of RCRA and two counts alleging violation of the CWA. The RCRA counts derived from the fact that Respondent Leed Foundry, Inc. ("Respondent" or "Leed" or "Leed Foundry") dumped baghouse dust waste generated as part of its metals manufacturing process behind its facility, rather than properly containing and disposing of it. In Counts 14 and 15 of the Complaint, Complainant asserts that Leed Foundry violated Sections 301(a) and 402(p) of the CWA Water Act by failing to obtain a National Pollutant Discharge Elimination System ("NPDES") permit for the discharge of storm water associated with industrial activity from the Leed Foundry (Count 15) and by discharging storm water associated with industrial activity from the Leed Foundry to navigable waters of the United States without an NPDES permit (Count 14).

Respondent filed an answer on November 1, 2004. The matter was heard before Administrative Law Judge Moran October 31 – November 7, 2005.

I. CLEAN WATER ACT VIOLATIONS – COUNTS XIV AND XV

The preponderance of evidence at the hearing demonstrates unequivocally that Respondent Leed Foundry violated Sections 301(a) and 402(p) of the CWA, 33 U.S.C. §§ 1311(a) & 1342(p), by failing to apply for and obtain an NPDES permit for the discharge of storm water associated with industrial activity and by discharging storm water associated with industrial activity without an NPDES permit. The preponderance of the evidence also demonstrates that, based on: the nature, circumstances, extent and gravity of the violations; the Respondent's ability to pay, prior history of violations, degree of culpability, and economic benefit resulting from the violations; and such other matters as justice may require, the full statutory maximum penalty of $157,500 for a Class II violation should be assessed.

Leed Foundry stores materials, including baghouse dust, scrap iron, coke, limestone and sand, outdoors where it is available to be entrained during precipitation events and carried by storm water to waters of the United States. The materials on the Leed Foundry facility include pollutants such as lead and cadmium, at levels which, under any measure, present a threat to human health and the environment. The high levels of lead and cadmium in materials exposed and available for discharge through storm water at the Leed facility have long been known to Leed. In addition, Leed has long known that it is required to obtain and comply with an NPDES permit for the discharge of storm water. Despite its attempts to portray itself as an environmental good citizen, however, Leed did not obtain an NPDES permit and did virtually nothing to control storm water discharges from its facility until ordered to do so by the U.S. Environmental Protection Agency ("EPA"). Every inspector who testified stated that the Leed

facility was among the "worst" facilities in terms of housekeeping and potential to discharge that he had ever seen. These violations are consistent with Leed's overall pattern of ignoring environmental issues and then making only minimal improvements even after being inspected by a regulator and directed to implement corrective measures.

A. Statutory and Regulatory Context

The purpose of the CWA (33 U.S.C. §§ 1251-1387) is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). To that end, Section 301(a) of the CWA, 33 U.S.C. § 1311(a), prohibits the discharge of any pollutant (other than dredged or fill material) by any person except in compliance with, *inter alia*, permits issued pursuant to the NPDES program under Section 402 of the Act, 33 U.S.C. § 1342.[1]

The CWA defines the term "discharge of a pollutant" to include "any addition of any pollutant to navigable waters from any point source." 33 U.S.C. § 1362(12). "Navigable waters" means "waters of the United States, including the territorial seas." *Id.* § 1362(7). EPA has issued regulations further defining "waters of the United States" as including "[a]ll waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to ebb and flow of the tide" and their tributaries. 40 C.F.R. § 232.2. Discharges to waters of the United States include discharges through municipal separate storm sewers that discharge directly to waters of the United States. [2]

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[1] Or in the case of the discharge of dredged or fill material, except in compliance with a permit issued by the U.S. Army Corps of Engineers under Section 404(a) of the Act, 33 U.S.C. § 1344(a).

[2] *See, Hartsell v. United States*, 127 F.3d 343, 348 (4th Cir. 1997) ("Several courts, including the Supreme Court and this court, have held that Congress clearly intended to regulate pollutant discharge into sewer systems and other non-navigable waters through the CWA ...."); *see also United States v. Deaton,* 332 F.3d 698 (4th Cir. 2003), *cert. denied,* 541 U.S. 972 (2004) (discharge to man-made drainage ditch that flowed through culvert under a road to a second ditch that eventually flowed to natural water body was a discharge to waters of the United States);

The term "pollutants" includes, inter alia, solid waste, incinerator residue, chemical wastes, wrecked or discarded equipment, and industrial waste. *Id.* § 1362(6). Section 502(13), 33 U.S.C. § 1362(13), defines "toxic pollutants" as "those pollutants, or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to the Administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring."

Section 502(14) of the CWA, 33 U.S.C. § 1362(14), defines "point source" to include "any discernible, confined and discrete conveyance . . . from which pollutants are or may be discharged." Rills, fissures, erosion scars, and other results of concentrated flow are point sources. *See* Parker *v. Scrap Metal Processors, Inc.*, 386 F.3d 993, 1009 (11th Cir. 2004).

The early focus of the NPDES program was the reduction of pollutants from the discharge of industrial wastewater and municipal sewage. As sources of industrial wastewater and municipal sewage discharge were identified and brought within the NPDES program, it became apparent that other sources, including the discharge of storm water from industrial activities, construction sites and urban areas, also were contributing significantly to the degradation of the nation's waters. *See* 55 Fed. Reg. 47,990, 47,991 (Nov. 16, 1990). Recognizing the severity of the impacts from industrial and municipal storm water discharges, Congress enacted the Water Quality Act of 1987, Pub. L. No. 100-4, 101 Stat. 7 (1987) (codified

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Headwaters, Inc. v. Talent Irrigation District, 243 F.3d 526, 533-34 (9th Cir. 2001) (man-made conduits such as irrigation canals are tributaries and therefore discharges to such conduits are discharges to waters of the United States); *see also* Stip. Ex. 2, page EPA 0898 (permit includes dischartes to surface waters, "including to municipal separate storm sewers").

in scattered sections of Title 33 of the United States Code). Among other things, the Water Quality Act of 1987 added Section 402(p), 33 U.S.C. § 1342(p), which established a framework for regulating the discharge of storm water. For purposes of the NPDES program, "storm water" is "storm water runoff, snow melt runoff, and surface runoff and drainage." 40 C.F.R. § 122.26(b)(13).

Section 402(p) established a two-phase approach to regulation of storm water discharges. Section 402(p), as amended, established, among other things, deadlines for NPDES permit applications for certain storm water discharges ("Phase I discharges"). 33 U.S.C. § 1342(p)(3) & (4). Section 402(p) also set a moratorium until 1994 for issuance of NPDES permits for other types of discharges ("Phase II discharges"). *Id.* § 1342(p)(1) & (2); *see Natural Resources Defense Council, Inc. v. United States Environmental Protection Agency,* 966 F.2d 1292, 1295-96 (9th Cir. 1992). This two-phased approach allowed EPA to focus on the more serious problems first. *Id.* at 1296 (citing 133 Cong.Rec. 991 (1987)). Phase I discharges were subject to NPDES permitting requirements and include discharges of storm water associated with industrial activity. 33 U.S.C. § 1342(p)(2). Section 402(p) states that NPDES permits for discharges associated with industrial activity "shall" meet all applicable provisions of Section 301, including technology-based and water quality based effluent limits. 33 U.S.C. § 1342(p)(3).

Section 402(p) directed EPA to promulgate regulations setting forth NPDES permit application requirements for Phase I discharges, which regulations EPA promulgated in 1990. *See* 33 U.S.C. § 1342(p)(4); *National Pollutant Discharge Elimination System Permit Application Regulation for Stormwater Discharges,* 55 Fed. Reg. 47,990 (Nov. 16, 1990).

Those regulations, known as the "Phase I" regulations, were codified at 40 C.F.R. § 122.26. Among other things, 40 C.F.R. § 122.26 requires an NPDES permit for any discharge associated with industrial activity. The Phase I regulations define eleven categories of industrial activities, including but not limited to, storm water discharged from facilities classified as Standard Industrial Classification ("SIC") 33. 40 C.F.R. § 122.26(b)(14)(ii). SIC 33 refers to primary metals industries, including grey iron foundries such as the Leed Foundry. *See Additional Stipulations of Complainant and Respondent* No. 4; *see also Notice, Final National Pollutant Discharge Elimination System Storm Water Multi-Sector General Permit for Industrial Activities*, 60 Fed. Reg. 50805, 50877 (Sept. 29, 1995).

EPA has authorized the Pennsylvania Department of Environmental Protection ("DEP") to implement the NPDES program in the Commonwealth of Pennsylvania. Thus, the NPDES permitting authority in Pennsylvania is DEP. Tr. 421 (Harsh).[3]

While NPDES permits for the discharge of storm water associated with industrial activity may contain numeric effluent limits, such permits control the discharge of storm water primarily by requiring the permittee to develop and implement best management practices in a plan called a Storm Water Pollution Prevention Plan ("SWPPP"). Stipulated Exhibit[4] 1, page 0895; Stip. Ex. 2, page EPA 0920; Tr. 428 (Harsh). DEP's permits use the term "Preparedness, Prevention and Contingency Plan" ("PPC") to refer to the required SWPPP. Tr. 438; 550-53 (Harsh).

B. Standard of Proof

Complainant bears the burden of proof regarding the existence of the violations pleaded in the Complaint and the appropriateness of the remedy. The standard of proof in this

[3] The transcript of the Administrative Hearing in this matter hereafter will be cited as "Tr. __ (witness)."

[4] The Stipulated Exhibits hereafter will be cited as "Stip. Ex. __."

proceeding is the preponderance of the evidence and not the more stringent beyond a reasonable doubt standard. 40 C.F.R. § 22.24(a); *see, e.g., In re City of Marshall, Minnesota,* 10 E.A.D. 173, 180 (2001). Most of the facts relevant to the CWA violations and penalty are stipulated, provided by Respondent or otherwise uncontested.

C. Factual Background

1. The Leed Foundry Facility

Respondent Leed Foundry, Inc. operates a grey iron foundry located off Wade Road in St. Clair, Pennsylvania ("Leed Foundry facility" or "facility"). At its facility, Respondent produces grey iron castings, such as manhole covers and collars, from scrap iron. *Additional Stipulations of Complainant and Respondent* Nos. 2 & 3 (Nov. 1, 2005) (cited hereafter as "*Additional Stipulation* No. __").

The primary manufacturing process at the facility occurs in a large cylindrical vessel called a cupola. Tr. 94 (Wojciechowski). Scrap metal, coke and limestone are all mixed together in the cupola, Tr. 94 (Wojciechowski), the coke is ignited, the metals melt and drip downward through and around the coke. Tr. 95-96 (Wojciechowski). The molten metal is drawn off from the bottom of the cupola. The coke, in addition to adding heat, is a raw material and part of the manufacturing process. *See* Tr. 97-98 (Wojciechowski); Tr. 1094 (Quirin). For example, the melting metal interacts with the coke, absorbing some of it. Tr. 97 (Wojciechowski). In addition, the coke is necessary to create a reducing environment so as to inhibit oxidation of the metals, otherwise the product would be iron-oxide instead of the desired iron. Tr. 97 (Wojciechowski). The coke affects the physical and chemical properties of the final product – too much coke in the cupola mix will negatively influence the nature of the product. Tr. 98 (Wojciechowski).

The cupola process necessarily generates air borne waste particles. These are transported through a series of ducts to a structure called a baghouse. Tr. 99 (Wojciechowski). The particles deposit themselves on the inside of bags in the baghouse. From time to time, the particles are loosened from bags in the baghouse either by impact from a pulse of air or by mechanical shaking, and they fall down into hoppers affixed to the underside of the baghouse. Tr. 102-04 (Wojciechowski); Complainant's Exhibit 6I. (Complainant's Exhibits hereafter will be cited as "CX __"). The bottoms of large hoppers affixed to the baghouse are periodically opened allowing the particles to drop into bins (sometimes called "tipping hoppers")[5] below. Tr. 104-05 (Wojciechowski); CX 5J.[6] The waste particles generated by the process are referred to herein as "baghouse dust."[7]

The molten metal is made into castings using a green sand molding process. Bentonite clay and sea coal are added to sand to manufacture molding sand. The resulting sand is black in color. The molding sand is poured into molds and compressed and the mold is removed to create a cavity. The cavity is filled with iron to create a casting. Tr. 986 (Quirin).

The Leed Foundry facility is depicted on a topographic map prepared by Earth Data, a consultant for Leed Foundry. *See* CX 18; *see also* Stip. Ex. 3, Figure 2, page EPA 0175a.[8] In

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[5]These devices have also been called "tilt buckets." Tr. 1083-84 (Quirin).

[6]At an operation like Leed Foundry, the material charged into the cupola to be processed is not simply "iron." It is scrap and so contains a variety of other metals such as lead, cadmium, molybdenum, manganese and chromium. Tr. at 94-96 (Wojciechowski).

[7] Complainant has been clear that the material captured in the baghouse from Respondent's cupola operation and dumped in a large pile behind the cupola is a substance called "baghouse dust." Respondent, however, has used both the term "baghouse dust" and the term "fly ash" when referring to this material. *Compare e.g.*, Tr. 1006 lines 6-9 (Respondent's attorney questioning Quirin about results of analyses Quirin performed on "baghouse dust) *with* Tr. 1006 lines 21-22 (Quirin responding using the term "fly ash").

[8] CX 18 and Stip. Ex. 3, Figure 2, page 175a are the same underlying topographic map. Each include markings placed by various witnesses either before or during the course of the hearing.

addition to depicting the Leed Foundry facilities, CX 18 and Stip. Ex. 3, Figure 2, page EPA 0175a include topographic lines showing the relative elevations (in two-foot increments) of structures and other features on the Leed Foundry property and other nearby features including storm inlets and State Route 61. Tr. 446-48 (Harsh); CX 18; Stip. Ex. 3, Figure 2, page 0175a. The topographic lines are instructive because water, including storm water, flows downhill. Tr. 753 (Harsh).

The Leed Foundry is located partway up a steep hillside. Tr. 446-49 (Harsh); CX 18; Stip. Ex., Figure 2, page EPA 0175a. The site is analogous to a tabletop pushed up against a wall. The facility includes several buildings, including the foundry, a cupola and two baghouses (one for the iron foundry described above and a separate baghouse for sand).[9] A roadway runs in a north-south direction along the western portion of the facility behind the buildings. That road is marked in orange on CX 18. Tr. 450-51 (Harsh). The road reaches a topographic "high" or apex on the Leed Foundry property at approximately its midpoint. From the topographic "high," the road runs downhill to the south and to the north. Tr. 218-222 (Cox); Tr. 453-55 (Harsh). The high point in the road is located approximately on the drainage divide between Drainage areas 1 and 4. Tr. 454-55 (Harsh); CX 18; Stip. Ex. 3, figure 2, page 0175a. *See infra* for a description of the drainage areas on the Leed facility.

There is very little, if any, dispute as to how storm water flows on the Leed Foundry facility, how it is discharged from the Leed Foundry facility, and where it winds up. In response to an Administrative Compliance Order issued by EPA (Stip. Ex. 4), Leed Foundry retained Earth Data Northeast, Inc. to prepare a drainage map of the Leed Foundry facility. Tr. 797 &

[9] Unless otherwise noted, the term "baghouse" when used herein refers to the iron foundry cupola baghouse.

800 (Epps). The facility was surveyed, and the topographic map that became part of CX 18 and Stip. Ex. 3, Figure 2, page 175a was generated. Tr. 799-801 (Epps).

According to Leed's consultant, the Leed Foundry facility consists of four drainage areas or zones. Drainage area 1 is located in the southwestern portion of the facility and is outlined in yellow on CX 18 and Stip. Ex. 3, Figure 2, page EPA 175a. Tr. 449 (Harsh); Tr. 802 (Epps). Drainage area 1 includes areas where raw materials, including scrap iron, limestone, and coke were stored uncovered outdoors. CX 18; Stip. Ex. 3, page EPA 0162-0163 & Figure 2, page EPA 175a; Tr. 204-06 (Cox). Storm water falling on Drainage area 1 is directed to Outfall 1. Outfall 1 is a pipe located on the southeastern portion of the facility's property. Stip. Ex. 3; Tr.803-05 (Epps).

Drainage area 2 is located in the southeastern portion of the facility and is outlined in purple on CX 18 and Stip. Ex. 3, page EPA 0163 & Figure 2, page EPA 175a; Tr. 449 (Harsh); Tr. 802 (Epps). Drainage area 2 includes a portion of the foundry building, a paved area containing a propane tank, a shed, and a foundry sand silo. Stip. Ex. 3, page EPA 0163. Storm water falling on Drainage area 2 is directed to Outfall 2. Outfall 2 is a pipe located in the southeastern portion of the facility's property. Stip. Ex. 3; Tr. 805 (Epps).

Drainage area 3 is located in the southeastern portion of the facility and is outlined in blue on CX 18 and Stip. Ex. 3, Figure 2, page EPA 175a; Tr.449 (Harsh); Tr. 802 (Epps). Drainage area 3 includes a portion of the foundry building, a small area of unpaved hillside and two concrete scales. Stip. Ex. 3, page EPA 0163. Storm water falling on Drainage area 3 is directed to Outfall 3. Outfall 3 is a pipe located in the southeastern portion of the facility's property. Stip. Ex. 3; Tr. 805-06 (Epps).

Drainage area 4 is located in the northern and western portions of the facility and is outlined in green on CX 18 and Stip. Ex. 3, Figure 2, page EPA 175a; Tr. 450 (Harsh); Tr. 802 (Epps). Drainage area 4 includes the area where the baghouse and associated tipping hoppers are located. CX18 (cupola baghouse located on labeled in purple on C.Ex. 18 at area where word "rack" appears); Tr. 232 (Cox), CX 6J (tipping hoppers located under the baghouse); *see* Tr. 1080-88 (Quirin) (dust from hoppers then moved to dust pile behind baghouse). This is also the area where the pile of baghouse dust waste is stored outdoors. Tr. 211-12 (Cox); CX 18 (baghouse dust pile denoted in blue). According to the report prepared by Respondent's consultant, storm water falling on Drainage area 4 is directed to Outfall 4. Stip. Ex. 3; Tr. 806-07 (Epps). Unlike Outfalls 1, 2, and 3, Outfall 4 is not a pipe. Outfall 4 is an inlet to St. Clair Borough's municipal separate storm sewer. Tr. 462-63 & 465 (Harsh). According to the report prepared by Respondent's consultant, some storm water falling on Drainage area 4 is directed through a rock-lined channel and collected in an inlet which then directs it to Outfall 4. Stip. Ex. 3. Both Outfall 4 and the inlet at the bottom of the rock-lined channel are inlets that go to the St. Clair municipal storm sewer. Tr. 462-463 (Harsh).

How storm water flows from the Leed Foundry facility also is either stipulated or unrebutted. In response to the Administrative Compliance Order (Stip. Ex. 4), Respondent's consultant calculated the amount and intensity of a 24-hour rainfall event that would cause storm water to be discharged from the Leed Foundry facilities through Outfalls 1, 2, 3, and 4. Stip. Ex. 6. Respondent's consultant determined that any measurable amount of rainfall in excess of one one-hundreth of an inch (0.01 inches) over a 24-hour period would result in the discharge of storm water from the Leed Foundry facility. Stip. Ex. 6. According to Respondent's consultant, a 24-hour rainfall event of 0.01 inches will cause the discharge of 873.31 gallons per day from

Outfall 1, 246.45 gallons per day from Outfall 2, 312.13 gallons per day from Outfall 3, and 1673.89 gallons per day from Outfall 4. Stip. Ex. 6.

Mr. Harsh, EPA's storm water inspector, testified as to what happens to storm water flowing from the Leed Foundry facility through Outfalls 1, 2, 3, and 4. With respect to Drainage area 4 (where the baghouse, the tipping hoppers which receive the dust from the baghouse, and the piles of baghouse dust waste are located), Mr. Harsh testified that storm water flowed to two inlets, one labeled "Outfall 4" on CX 18 and Stip. Ex. 3, Figure 2, page EPA 175a, and another inlet identified by a small square at the end of the rock-lined channel on CX 18 and Stip. Ex. 3, Figure 2, page EPA 175a. Tr. 461-63 (Harsh). Mr. Harsh's testimony in this regard was based on the report prepared by Respondent's consultant (Stip. Ex. 3), Mr. Harsh's analysis of the topographic map prepared by Respondent's consultant (CX 18 and Stip. Ex. 3, Figure 2, page EPA 175a), and Mr. Harsh's personal observations of the facility's topography and physical evidence, such as accumulation of debris, and rills and fissures, showing the flow of water from the Leed Foundry facility to these two inlets.

Mr. Harsh testified that the two inlets that receive storm water from Drainage area 4 are direct inlets to the St. Clair Borough municipal separate storm sewer. CX; 4V; Tr. 461-63; 516-17 (Harsh). Storm water entering the municipal separate storm sewer at this point flows through a series of pipes and then discharges untreated to Mill Creek. Tr. 465-66 (Harsh). Mr. Harsh's testimony was based on his examination of maps of St. Clair Borough depicting the route of the municipal separate storm sewer and conversations he had with St. Clair Borough officials that confirmed his interpretation. Tr. 466-478 (Harsh); CX 13.

Outfalls 1, 2 and 3 are pipes located in the southeastern portion of the Leed Foundry facility. CX 4BB; 4CC; 4DD; 4KK; 4LL; Tr. 449-62; 508-09; 517 (Harsh); *see also* CX 18;

Stip. Ex. 3, figure 2, page EPA 175a; Tr. 803-06 (Epps). Mr. Harsh testified that storm water shoots out of these pipes and flows down the steep hill below the pipes to a drainage ditch or swale located at the bottom of the hill and running in a southerly direction along Route 61 parallel to the Leed Foundry facility. CX 5E; 5F; Tr. 511; 529-31 (Harsh). Mr. Harsh based his testimony on his personal observation of erosion scars in the hillside which are evidence of concentrated flow of water, and the drainage ditch itself. Mr. Harsh documented his observations in photographs. CX 5A; 5B; 5C; 5E; 5F; Tr. 517-18; 528-31 (Harsh).

Water collected in the drainage ditch flows south toward a larger swale and then into a large inlet to the St. Clair Borough municipal separate storm sewer located slightly south and east of the Leed Foundry facility. CX 4S; Tr. 511-12; 514 (Harsh). From this inlet, storm water flows in a series of pipes through the municipal separate storm sewer and is ultimately discharged untreated to Mill Creek. CX 13; Tr. 466-79; 512-14 (Harsh).

Mr. Harsh's testimony that storm water discharged from Leed Foundry Outfalls 1, 2, 3 and 4 flows to Mill Creek through the municipal separate storm sewer is consistent with a Notice of Intent to be covered by Pennsylvania's general NPDES permit for discharges of storm water associated with industrial activity submitted by Respondent under oath to the Pennsylvania DEP. Stip. Ex. 1. That Notice of Intent identifies Mill Creek as the receiving water for Outfalls 1, 2, 3 and 4. Stip. Ex. 1. The Notice of Intent was submitted to comply with EPA's Administrative Compliance Order. Stip. Ex. 4.

In addition to relying upon Respondent's calculations and Mr. Harsh's observations and analysis, Complainant consulted an expert in the field of hydrology, Dr. Jack Hwang, to provide an opinion as to the flow of storm water on and away from the Leed Foundry facility. Dr. Hwang has been employed by EPA as a hydrologist since 1985. He serves as a national EPA

expert in the field of underground storage tanks. Dr. Hwang holds a Bachelor of Science degree in Agricultural Chemistry from the National Chunghsin University in Taiwan, a Master of Science degree in Soil Science, a Master of Science degree in Fluid Mechanics and a PhD in Fluid Mechanics from the University of Minnesota. He also serves as an adjunct professor at Drexel University teaching graduate and undergraduate courses in water resources, hydraulic engineering and storm water management. The parties stipulated that Dr. Hwang qualifies as an expert in the field of hydrology. The substance of his testimony was provided by stipulation of the parties, and Respondent waived the ability to cross-examine Dr. Hwang. Stipulations Regarding the Testimony of Dr. Jack Hwang; Tr. 840-43.

With respect to Drainage area 4, Dr. Hwang reviewed the description provided by Respondent's consultant in Stip. Ex. 3, the topographic map identified as CX 18 (prior to markings added during the hearing), Stip. Ex. 3, Figure 2, page EPA 0175a (before markings added during the hearing), information provided by Mr. Harsh, and the calculations of Respondent's consultant (Stip. Ex. 6) that any measurable rainfall of 0.01 inch of rain over a twenty-four hour period will cause storm water to discharge from Drainage Area 4 of the Leed Foundry facility to inlets to the municipal storm sewer. Dr. Hwang also based his testimony on his understanding that the soil type at and in the vicinity of the Leed Foundry facility fall within Hydrologic Soil Group B for purposes of the U.S. Department of Agriculture Soil Conservation Service, *Urban Hydrology for Small Watersheds, Technical Reference 55* (June 1986) ("*TR-55*"). *See Additional Stipulations of Complainant and Respondent* (Nov. 1, 2005) (stipulating that the soil type at and in the vicinity of the Leed Foundry facility falls within Hydrologic Soil Group B).

Dr. Hwang was uncertain whether the calculations of Respondent's consultant referred to total rainfall or "effective" rainfall. Effective rainfall is the amount of rain in excess of the "initial abstraction." Initial abstraction is a value that takes into account the amount of rain that will be absorbed or intercepted by soil and other surface features. Taking a conservative approach, Dr. Hwang assumed Respondent's consultant's calculations did ***not*** account for the initial abstraction. Dr. Hwang, used a formula from *TR-55* to calculate an initial abstraction of 0.22, which means that a rain event equal to or greater than 0.23 inches of rain over a twenty-four hour period will cause a discharge from Drainage Area 4 of the Leed Foundry facility to the storm sewer. Thus, Dr. Hwang's testimony is that the minimum rain event over a twenty-four hour priod that will cause a dicharge from Drainage Area 4 of the Leed Foundry facility to reach the municipal storm sewer is between 0.01 inches and 0.23.

With respect to the areas identified as Drainage Areas 1, 2 and 3 of the Leed Foundry facility on CX 18 and Stip. Ex. 3, Figure 2, page EPA 0175a, Dr. Hwang reviewed Respondent's Notice of Intent (Stip. Ex. 1), the description provided by Respondent's consultant in Stip. Ex. 3, the topographic map identified as CX 18 (before markings added during the hearing), Stip. Ex. 3, Figure 2, page EPA 0175a (before markings added during the hearing), photographs identified as CX 5A, 5B and 5C, information provided by Mr. Harsh, and the calculations of Respondent's consultant (Stip. Ex. 6) that any measurable rainfall of 0.01 inch of rain over a twenty-four hour period will cause storm water to discharge from Drainage Areas 1, 2 and 3 through Outfalls 1, 2, and 3. Based on the information he reviewed, it is Dr. Hwang's understanding that storm water falling on Drainage Areas 1, 2 and 3 is directed to Outfalls 1, 2 and 3 on the east side of the Leed Foundry Facility. From Outfalls 1, 2 and 3, the stormwater flows in concentrated form down a

steep hillside toward State Route 61. Upon reaching the bottom of the slope, the storm water travels south along State Route 61 to a large swale that drains to the municipal sewer.

Using standard equations from *TR-55,* Dr. Hwang calculated that a rain event of 0.6 inches over a twenty-four hour period will cause stormwater flowing from Drainage Areas 1, 2 and 3 of the Leed Foundry facility to discharge out Outfalls 1, 2 and 3 and from those outfalls to the muncipal storm sewer.

The parties have stipulated that Dr. Hwang's calculations are more conservative than those provided by Respondent's consultant. *See* Stipulated Testimony of Dr. Jack Hwang.

As described in more detail below, various inspections by State and federal personnel revealed that numerous raw materials, waste, baghouse dust, sand and other materials associated with Leed Foundry's processes were exposed to precipitation falling on the Leed Foundry facility. When there is sufficient precipitation to cause a discharge from the Leed Foundry facility, precipitation that comes in contact with raw materials, baghouse dust, sand, etc., picks up pollutants from these materials and transports them to the municipal sewer and eventually to Mill Creek. Tr. 418-19; 466 (Harsh).

Among the materials exposed to storm water at the Leed Foundry facility are scrap iron, coke, limestone, and baghouse dust. *See infra* for detailed descriptions of the observations of Complainant's and DEP's inspectors; *see also* Tr. 817-18 (Epps). The baghouse dust has been tested repeatedly by EPA, Pennsylvania DEP and Respondent and found to contain high levels of lead and cadmium:

TABLE 1a – SAMPLES ANALYZED USING TCLP

Sample date	Sample taken by	Material Sampled	Type of analysis	Sample Id	Level of Lead	Level of Cadmium	Exhibit No.
12/12/01	Respondent*	Baghouse dust	TCLP	2002:0000335-4	6.85 mg/L	0.05 mg/L	CX 22
12/12/01	Respondent*	Baghouse dust	TCLP	2002:0000335-5	10.7 mg/L	0.06 mg/L	CX 22
12/12/01	Respondent*	Baghouse dust	TCLP	2002:0000335-6	11.3 mg/L	0.07 mg/L	CX 22
9/19/02	DEP**	Baghouse dust	TCLP	I2002046966	976 mg/L	3.37 mg/L	CX 23
9/30/02	Respondent***	Baghouse dust	TCLP	K210013-01	800 mg/L	3.7 mg/L	CX 25
10/24/02	EPA	Baghouse dust	TCLP	Pile-1, Grab-1	276 mg/L	6.28 mg/L	10/19/05 Stipulation
10/24/02	EPA	Baghouse dust	TCLP	Pile-1, Grab-2	407 mg/L	4.12 mg/L	10/19/05 Stipulation
10/24/02	EPA	Baghouse dust	TCLP	Pile-1, Comp.	515 mg/L	5.23 mg/L	10/19/05 Stipulation
10/24/02	EPA	Baghouse dust	TCLP	Pile-2, Grab-1	356 mg/L	10.2 mg/L	10/19/05 Stipulation
10/24/02	EPA	Baghouse dust	TCLP	Pile-2, Grab-2	882 mg/L	3.02 mg/L	10/19/05 Stipulation
10/24/02	EPA	Baghouse dust	TCLP	Pile-2, Comp.	926mg/L	3.9 mg/L	10/19/05 Stipulation
12/17/02▲	U.S. Liquids	Baghouse dust	TCLP	29979	210 mg/L	2.0 mg/L	CX 24
2/7/05♣	DEP	Baghouse dust	TCLP	3129 001	110 mg/L	0.426 mg/L	CX 29
2/7/05♣	DEP	sand	TCLP	3129 002	11.6 mg/L	0.023 mg/L	CX 29
2/7/05♣	DEP	Baghouse dust	TCLP	3129 003	83.3 mg/L	4.14 mg/L	CX 29

* Sampling done by Leed consultant Guimond and Associates and analysis done by Free-Col Laboratories

** Per testimony of Mr. Feher – composite sample of baghouse dust pile (Tr. 291(Feher))

*** Per testimony of Mr. Cox (Tr. at 241-42, C.Ex. 38 (EPA sent Leed an information request letter asking, at question 6 for results of analysis of baghouse dust), Tr. at 250 (C.Ex. 25 provided to EPA in response to request))

▲Provided by facility that accepted baghouse dust from Leed. (Tr. at 246-47 (results obtained in response to EPA information request sent directly to US Liquids)).

♣Per testimony of Mr. Feher. Tr. at 313-315 (Feher took three samples, one of loose material on the ground around the tipping hoppers under the baghouse, one of sand on the ground near a sand collector, and one of baghouse dust taken from inside a tipping hopper.) Tr. at 316 (results for material on ground around tipping hoppers, i.e., sample no 3129 001, shown on C.Ex. 21 Bates No. 0314); Tr. at 316-17 (results for sand on ground near sand collector, i.e., sample no 3129 002, shown on C.Ex. 21 Bates No. 0315); Tr. at 318 (results for baghouse dust inside tipping hopper under baghouse, i.e., sample no 3129 003, shown on C.Ex. 21 Bates No. 0316). See also Tr. 349-50, 364-65 (sampling was performed in 2005).

TABLE 1B – SAMPLES ANALYZED FOR TOTAL METALS

Sample date	Sample taken by	Material sampled	Type of analysis	Sample Id	Level of Lead	Level of Cadmium	Exhibit No.
10/24/02	EPA	Baghouse dust	Total metals	Pile-1, Grab-1	136000 mg/kg	288 mg/kg	C.Ex 33A
10/24/02	EPA	Baghouse dust	Total metals	Pile-1, Grab-2	138000 mg/L	220 mg/kg	C.Ex. 33B
10/24/02	EPA	Baghouse dust	Total metals	Pile-1, Comp.	103000 mg/kg	256 mg/kg	C.Ex. 33C
10/24/02	EPA	Baghouse dust	Total metals	Pile-2, Grab-1	98300 mg/kg	249 mg/kg	C.Ex. 33D
10/24/02	EPA	Baghouse dust	Total metals	Pile-2, Grab-2	97400 mg/kg	176 mg/kg	C.Ex. 33 E
10/24/02	EPA	Baghouse dust	Total metals	Pile-2, Comp.	69,00 mg/kg	131 mg/kg	C.Ex. 33F
10/24/02	EPA	Baghouse dust	Total metals	Pile-1, Grab 3	144,000 mg/kg	274 mg/kg	C.Ex. 33G
8/19/03	EPA	Sediment	Total metals	1B	1130 ug/g	4.4 ug/g	CX 66
8/19/03	EPA	Sediment	Total metals	1C	464 ug/g	2.0 ug/g	CX 66
8/19/03	EPA	Sediment	Total metals	2	32 ug/g	9.6	CX 66
8/19/03	EPA	Sediment	Total metals	3	1530 ug/g	4.6 ug/g	CX 66

Storm water discharged from Respondent's facility also contains high levels of lead, cadmium and other pollutants:

TABLE 2

Outfall	Pollutant	Concentration	Sample Type	Date
1	BOD*	7,800 ug/L	Grab (1 sample)	11/19/03
	Barium	120 ug/L		
	Cadmium	9 ug/L		
	Arsenic	10.4 ug/L		
	Mercury	1.71 ug/L		

Outfall	Pollutant	Concentration	Sample Type	Date
	Lead	3,500 ug/L		
	pH	7.01		
	TSS**	192,000 ug/L		
2	Barium	44 ug/L	Grab (1 sample)	11/19/03
	Lead	28 ug/L		
	pH	7.07 ug/L		
3	BOD*	8,600 ug/L	Grab (1 sample)	11/19/03
	Barium	46 ug/L		
	Cadmium	4 ug/L		
	Lead	38 ug/L		
	pH	7.12		
	TSS**	12,000 ug/L		
4	BOD*	5,900 ug/L	Grab (1 sample)	11/19/03
	Barim	45 ug/L		
	Cadmium	5 ug/L		
	Lead	27 ug/L		
	Oil & grease	4,700 ug/L		
	pH	7.21		

*Biological Oxygen Demand
**Total Suspended Solids

Source: Stip. Ex. 1, page EPA0894-0895; Tr. 812-15 (Epps).

2. *April 2001 DEP Inspection*

As previously stated, the baghouse dust is stored outdoors in piles along the western side of the road near the topographic "high" in the roadway. An inspection report prepared by the

Pennsylvania Department of Environmental Protection stated that, as of an inspection conducted April 25, 2001, "Dust from the baghouses was being stored openly in piles. There were fugitive emissions being generated from these piles. The emissions were not crossing the property lines. No actions were being taken to prevent this particulate matter from becoming airborne." Respondent's Exhibit 9 (Respondent's Exhibits are hereinafter cited as "RX __"). Thus, at the time of DEP's April 25, 2001 inspection, the piles of baghouse dust were uncovered and completely exposed to precipitation and subject to transport via storm water.

This inspection report is consistent with Respondent's Answer, which states that "Since September 2001, which Leed believes is the time frame EPA has identified as being relevant to this portion of the Complaint, the fly ash contents of the accumulation container were carefully moved to another area of the Leed facility that was specifically constructed to safely stage the fly ash for eventual disposal (the "fly ash staging area"). The fly ash staging area was constructed on a concrete slab with three concrete walls. It was located at a high area of the facility, out of truck and equipment traffic areas and above the water table. Fly ash staged in the fly ash staging area was covered with plastic tarp/sheeting, which was secured on the pile with strategically placed weighted material. When the staging area reached capacity, additional plastic tarp/sheeting was placed on the adjacent ground surface, to reduce the potential for the fly ash to come in contact with the ground surface." Answer of Respondent.

The inspection report also is consistent with Mr. Quirin's testimony. Mr. Quirin admits that, at some point prior to 2001, the baghouse dust was stored without covering. Tr. 1070-71 (Quirin). Mr. Quirin was unable to testify (other than to guess) when the baghouse dust was covered:

Q: Was it covered in 1995?

A: I don't remember.

Q: Was it covered in 1996?

A: I don't remember.

Q: [....] [W]as it covered in 1997?

A: I don't know.

Q: When is the very first time you remember the pile being covered?

A: Perhaps '98, '99, somewhere in there.

Q: And why is it that you think that it was covered in 1998 or 1999?

A: Because I'm trying to do my best to remember when we covered it.

Q: Sure. Are you associating the covering of the pile with some event that is tieing [sic] it into that time period?

A: No.

Q: Okay. They why is it that you think that was the approximate time of the first cover?

A: It just seems like it would have been covered that far back. ***I don't know.***

Q: But you don't specifically remember that it was covered at that time?

A: ***No.***

Tr. 1071-72 (Quirin) (emphasis added).

In reviewing Ms. Llewellen's inspection report, which he signed, Mr. Quirin conceded that the inspection report stated that the baghouse dust pile was uncovered in April 2001 and he had no reason to doubt the accuracy of the inspection report. Tr. 1078-81 (Quirin).

Ms. Llewellen subsequently inspected the facility on May 20, 2003. During that inspection, she noted that "The facility has cleaned up all the dust around the facility. They ***now***

store all the baghouse fines in dumpsters. *1* dumpster was not covered. This dumpster needs to be covered. The property was very clean and well maintained." RX 2 (emphasis added). The May 20, 2003 inspection report contrasts with the April 2001 inspection report. In May 2003, Ms. Llewellen states that ***one*** dumpster was not covered, whereas the April 2001 inspection report states that the baghouse dust "piles" (plural in original) are stored "openly" and that fugitive emissions were coming from these "piles."

3. September 2002 EPA Inspection

In September 2002, representatives of EPA's RCRA program and DEP conducted an inspection of the Leed Foundry. When Mr. Cox, EPA's RCRA inspector, arrived unannounced at the Leed Foundry, Mr. Quirin was not on the premises. Mr. Cox waited approximately 15-20 minutes for Mr. Quirin to arrive. Tr. 197 (Cox). Once he arrived, Mr. Quirin described the processes used at the facility, how many employees worked there, etc., and showed Mr. Cox around the facility. Tr. 197 (Cox).

Mr. Cox, who has inspected approximately 200 facilities, including approximately a dozen foundries (nine in Pennsylvania) (Tr. 263-64 (Cox)) described the Leed Foundry facility as "a very dirty site inside and out .... I would say it's one of the dirtiest ones, if not the dirtiest one, I've seen." Tr. 239 (Cox).

Mr. Cox observed a large pile of scrap metal, a pile of coke and piles of limestone stored outdoors and uncovered. Tr. 205-06 (Cox). Mr. Cox observed these piles of raw materials in Drainage Area 1 near the topographic "high" in the roadway that traverses the facility. Tr. 210-11 (Cox); *see also* CX 18. The raw materials were contained on three sides by a four-foot concrete wall, but were open to the roadway. Tr. 212 & 214-15 (Cox).

During the same September 2002 inspection, Mr. Cox observed piles of baghouse dust stored outdoors in Drainage Area 4 near the topographic high in the roadway, adjacent to the areas where raw materials were stored, and across the roadway from the baghouse. Tr. 211-12 (Cox). The piles of baghouse dust were covered with a blue tarp held in place by pieces of scap iron. Tr. 228; CX 6A, 6B. The piles, which were as high as eight feet, were surrounded on three sides by a four-foot high concrete barrier and open to the roadway. Tr. 214 (Cox).

There was so much dust covering the paved roadway running adjacent to the outdoor storage area for raw materials and baghouse dust that Mr. Cox could not see the pavement beneath the dust:

A: [...] The coating was very fine to the point that a truck and tire marks were easily seen in it, and where the tires kicked up the material and left their tracks you could tell there was a pavement. Obviously, I was walking on something hard.

Q: But could you actually see it through the dust?

A: Not clearly, no."

Tr. 227 (Cox); *see also* CX 6B.

Mr. Cox noted that one source of dust was the "tipping hoppers" into which the baghouse waste was deposited when it dropped down from the baghouse. These hoppers had an opening at the top, through which dust escaped. Mr. Cox observed baghouse dust on the ground in the area of the tipping hoppers. The tipping hoppers were located in an open area under the baghouse, and there was no containment around them. Tr. 231-36 (Cox); CX 6J, 6K.

Mr. Cox observed gray, fine powdery dust similar to the baghouse dust on the ground and roadway at the Leed Facility. Tr. 222-25 (Cox). He asked Mr. Quirin about the composition of the baghouse dust, and Mr. Quirin told him that Leed Foundry had tested the baghouse dust on several occasions and represented that the baghouse dust tested by Leed had ***never*** "tested

hazardous." Tr. 239-40 (Cox); *see also*. Mr. Cox subsequently sent an information request to Leed Foundry seeking, among other things, analyses of the baghouse dust previously performed by Leed or on Leed's behalf. Tr. 242 (Cox); CX 38. In response to this formal information request, Leed provided analyses of samples taken nine months earlier, in December 2001, showing that Leed was aware that the levels of lead and cadmium contained in the baghouse dust exceeded the regulatory levels for identifying hazardous waste under the Resource Conservation and Recovery Act using the TLCP leaching procedure, i.e., the material "tested hazardous." (Indeed, Mr. Quirin testified that he first became aware that the bag house dust had significant levels of lead and cadmium in the early 1990s. Tr. 1115 (Quirin).) Specifically, the analyses provided by Leed Foundry showed that the baghouse dust contained 6.85 mg/L lead and 10.7 mg/L lead compared with a RCRA toxicity characteristic hazardous waste criterion of 5.0 mg/L lead (40 C.F.R. § 261.24). CX 22; Tr. 243-44 (Cox). *See* December 12, 2002 sampling results in Table 1 *supra.*

Mr. Cox received other analyses from Leed that also showed that lead and/or cadmium levels in the baghouse dust at the Leed Facility were very high and exceeded RCRA toxicity characteristic hazardous waste criteria. *See* CX 25 (800 mg/L lead); *see* Table 1, *supra*. In addition, Mr. Cox received analyses from U.S. Liquids, the facility where Leed Foundry disposed of the baghouse dust. Information from U.S. Liquids showed levels of 210 mg/L lead and 2.0 mg/L cadmium in Leed's baghouse dust compared with a RCRA characteristic hazardous waste levels of 5.0 mg/L lead and 1.0 mg/L cadmium (40 C.F.R. § 261.24). CX 24, 26, 27, 28; Tr. 245-47 (Cox); *see* Table 1 *supra*.

4. *EPA's October 2002 Inspection*

In October 2002, Mr. Cox returned to the Leed Foundry facility. He again characterized the condition of the Leed Foundry facility as "probably the wors[t] I have seen both inside and out .... The dust seemed to be everywhere, and the front of the building was also dirty. The whole site seemed – there was very little housekeeping work being done there." Tr. 259 (Cox). During the October 2002 inspection, Mr. Cox observed the same general conditions at the Leed Foundry that he had observed in September 2002, except that jersey barriers, i.e., concrete highway barriers, had been placed between the piles of baghouse dust and the roadway. Tr. 258 (Cox). When Mr. Cox asked Mr. Quirinn why the jersey barriers had been installed, Mr. Quirin replied that his employees told him there was a "sea of dust" flowing down the hill when it rained. Tr. 261 (Cox).[10]

5. *Inspections by Mr. Feher of DEP*

Mr. William Feher of the Pennsylvania DEP accompanied Mr. Cox on both the September and October 2002 inspections.

Mr. Feher testified that, when the government inspectors first arrived at the Leed Foundry in September 2002, Mr. Quirin was not present. When Mr. Quirin arrived, the inspection commenced. Tr. 283-84 (Feher).

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[10] *See also* Transcript errata filed by Ken Cox. On direct examination by his own counsel, and after sitting through the hearing and apparently understanding the import of this statement, Mr. Quirin denied having made a reference to a "sea of ash" in conversation with Mr. Cox. (Mr. Cox testified that Mr. Quirin referred to a "sea of dust.") Mr. Cox's testimony, however, should be credited because it bears greater indicia of trustworthiness. First, Mr. Cox gave Mr. Quirin's statement in context – it was in response to Mr. Cox's question as to why Leed Foundry had installed jersey barriers between Mr. Cox's September and October 2002 inspections. Tr. 261 (Cox). Second, Mr. Cox had repeated the statement to Mr. Harsh, EPA's storm water inspector, close in time to when the statement was made. Tr. 717 (Harsh). By contrast, while acknowledging elsewhere that Leed Foundry had in fact installed the jersey barriers during the month between Mr. Cox's inspections (Tr. 1059), Mr. Quirin's counsel was careful not to ask why the jersey barriers had been installed, or what answer Mr. Quirin had actually given to Mr. Cox's inquiry. Tr. 1010-11 (Quirin).

Mr. Feher, who has inspected hundreds of facilities (Tr. 281 (Feher)), described the Leed Foundry facility as "one of the worst I've seen." Tr. 285 (Feher). During the September 2002 inspection, Mr. Feher observed two types of sand, both a tan-colored coarse sand on the ground, and a black colored sand which was on the roofs of the buildings and on the ground. Tr. 286-88 (Feher). The sand was available for movement by water, rain and wind and was blowing when it was dry. Tr. 286 (Feher). Mr. Feher also observed scrap material stored uncovered outdoors.

In addition, Mr. Feher observed the baghouse dust, which he described as "[g]ray color, talcum powdery, very, very light. Just light powdery. Just totally different than the sand that's for sure." Tr. 288 (Feher). Mr. Feher observed that the baghouse dust was so dry and "talcumy" that it "kick[ed] up" when a person walked past it. Tr. 288-89 (Feher). Mr. Feher observed baghouse dust in the area around the tipping hoppers under the cupola baghouse, tr. 290-91, C.Ex.6J, as well as "all over the ground" (Tr. 290-92 (Feher)).

Mr. Feher took samples from three different areas of the baghouse dust pile and mixed them together for a composite sample. He provided Mr. Quirin with a split sample. Tr. 291 (Feher). Analyses of the baghouse dust sample taken by Mr. Feher showed 976 mg/L lead using the TCLP method. CX 23; Tr. 296-99 (Feher) *see* Table 1 *supra*. Mr. Feher found this result to be so "shockingly" high when compared to the 5 mg/L RCRA threshold for hazardous waste and when compared with his experience at other sites that he double-checked with DEP's chemist to assure himself that there had not been a mistake. There was no mistake. Tr. 299 (Feher). The level of cadmium in the same sample was 3.3 mg/L, which was more than three times the 1.0 mg/L RCRA threshold for hazardous waste. *See* CX 23; Tr. 299-300 (Feher); *see* Table 1, *supra.*

Mr. Feher also accompanied Mr. Cox during the October 2002 inspection. Tr. 301 (Feher).

Mr. Feher conducted another inspection of the Leed Foundry in November 2004. In November 2004, "[t]here was still material on the ground around the hoppers, below the hoppers ...." under the baghouse. Tr. 303(Feher). It was raining, and Mr. Feher observed material being washed away from the hoppers where it was in contact with the water. Tr. 304 (Feher).

Mr. Feher took photographs to document the movement of other material at the facility with the rainwater. CX 32D. In addition to the material around the hoppers, black sand was being washed off rooftops, into drainage inlets in Drainage area 3 and Outfall 3. Tr. 304-08 (Feher). Mr. Quirin's testimony confirms that the facility does in fact produce black-colored sand. Tr. 986 (Quirin). (*See supra* for a description of the drainage areas on and outfalls from the Leed Foundry facility).

Mr. Feher also observed baghouse dust on the ground. When he discussed his concern about the baghouse dust with Mr. Quirin, Mr. Quirin told Mr. Feher that the material he observed blowing around on the ground was not baghouse dust but ordinary sand, even though the material was gray in color and very fine textured and even though the material was located in the area of the cupola baghouse. Tr. 311-12(Feher). Based on the color and consistency of the material, Mr. Feher disagreed with Mr. Quirin's representation and believed the material likely was baghouse dust.[11] Tr. 312 (Feher).

Mr. Feher returned to the facility at a later date with two other DEP personnel. Mr. Quirin was not on site. Mr. Quirin was contacted and said he would be at the facility in 15 minutes. Tr. 313 (Quirin). Mr. Feher took three samples: two of "known" substances and the

[11] It should be noted that Mr. Cox testified that, based on his observation, he also believed the material on the ground at the site to be baghouse dust. In particular, the baghouse dust in the tipping hoppers, which he described as "grey, powdery, like a talcum powder consistency," (Tr. 223 (Cox)) and as "dusty, powdery" material (Tr. 233 (Cox)) was the material he observed on the ground below the baghouse in the area around the tipping hoppers (Tr. 234-35 (Cox); CX 6J) and the material he observed on the roadway at the site (Tr. 222-24 (Cox)).

third of the material on the ground beneath the cupola baghouse which Mr. Feher recognized as baghouse dust, but which Mr. Quirin tried to convince him was "just sand." Tr. 312-315 (Feher).

DEP performed a chemical analysis and EPA performed a comparison of the characteristics of the various particles on the samples taken by Mr. Feher on this occasion. DEP's chemical analyses of these samples showed that sample number 003 to contained a high level of lead (110 mg/l of lead), as one might expect since it was baghouse dust. (Mr. Feher had taken sample 003 directly from the tipping hopper which received the baghouse dust from the baghouse). Tr. 318 (results for baghouse dust inside tipping hopper under baghouse, i.e., sample no 3129 003, shown on C.Ex. 21 Bates No. 0316). DEP's chemical analysis showed sample number 002 (which was sand from the near the sand collector) to contain a lower level of lead (11.6 mg/l). Tr. 316-17 (results for sand on ground near sand collector, i.e., sample no 3129 002, shown on C.Ex. 21 Bates No. 0315). Finally, the material lying on the ground in the area of the cupola baghouse was found to contain very substantial levels of lead (83.3 mg/l), tr. 316 (results for material on ground around tipping hoppers, i.e., sample no 3129 001, shown on C.Ex. 21 Bates No. 0314), thus validating Mr. Feher's position that the material was baghouse dust.

Joel Hennessy performed an analysis of the particles sampled by Mr. Feher. Tr. 332-36 (Feher); Tr. 863-69 (Hennessy); CX 81. Mr. Hennessy holds undergraduate and master of science degrees in geology and is a registered professional geologist. Tr. 856 & 862 (Hennessy). He was qualified as an expert witness in this matter for the purpose of testifying as to the identification and characterization of unconsolidated materials. Tr. 861-62 (Hennessy). Mr. Hennessy analyzed the samples collected by Mr. Feher. Mr. Hennessy analyzed three samples. Sample two was labeled as "fugitive sand." Tr. 869 (Hennessy). In his testimony, Mr. Feher

testified that sample two was sand from the ground next to the no. 1 sand collector. Tr. 316-17 (Feher). Sample 3 was labeled as "baghouse dust." Tr. 870 (Hennessy). Mr. Feher testified that he took sample three directly from the tipping hoppers which receive the baghouse dust from the cupola baghouse. Tr. 318 (Feher). Sample one was labeled "fugitive material from ground." Tr. 869 (Hennessy). Mr. Feher testified that sample one was from material lying on the ground in the area of the cupola baghouse. Tr. 316 (Feher).

Mr. Hennessy analyzed and photographed all three samples under a microscope using reflected light and transmitted light. First he familiarized himself with the two "known" materials. He studied sample two (the "fugitive sand"), which he characterized as mostly consisting of the same type of material. Sample two showed a material that was not very well sorted, in other words, it contained particles in a range of sizes. Most of the grains were transparent and most were fairly well rounded. There were a few particles that appeared angular and very dark black in color, but these were not a high percentage. Tr. 873-75 (Hennessy); CX 31I & 31J. Mr. Hennessy stated that sample two appeared similar to quartz sand, based on his observation of quartz sand under a microscope on other occasions. Tr. 895-96 (Hennessy).

Mr. Hennessy then studied sample three (the baghouse dust) which he characterized as including particles that were generally smaller or finer in particle size and more uniform than those in sample two (the fugitive sand). In addition, the particles in sample three were unlike those in sample two because, unlike the sample two particles, the sample three particles were opaque, i.e., they were not transparent in transmitted light. Tr. 878-81 (Hennessy); CX 31M; 31N.

Now being familiar with the microscopic characteristics of both baghouse dust and sand, Mr. Hennessey turned his attention to the material collected from the ground in the area of the

baghouse. Mr. Hennessy found that the particles in this last sample, i.e., sample one, to be much like sample three, i.e., the baghouse dust. For example, he described sample one as predominantly composed of the finer grain material (although it also included some larger material). In addition, the finer grained material was well sorted, as the baghouse dust had been. Moreover, this material was opaque, rather than translucent, in transmitted light. Tr. 881-87 (Hennessy); CX 31C & 31D. Mr. Hennessy testified that the material in sample one (the material on the ground) appeared predominantly to be the same type of material as that in sample three (baghouse dust). Tr. 886-87 (Hennessy).

Thus both the chemical analysis and Mr. Hennessy's analysis confirmed Mr. Feher's observation that the material he observed on the ground at the Leed facility was primarily baghouse dust and refuted Mr. Quirin's efforts to explain it away as mere sand.

6. EPA's Storm Water Inspections

Mr. Harsh, EPA's storm water inspector, first toured the Leed facility on April 15, 2003. Like Mr. Cox and Mr. Feher, Mr. Harsh testified that the Leed facility was one of the "worst sites" he had ever inspected:

> As in the worst of the sites. And this was based on the time frame that these violations were occurring, the nature of the waste that were stored there. And even after the – well, first of all, at some point there was no control at all. It had the baghouse waste completely exposed to stormwater. For sometime there was a tarp covering at least portions of the piles that we don't know the effectiveness of. And, at some point later, there were jersey barriers added. And then, finally, at some point, these, the mass piles, this waste, were removed but at the same time there was still these wastes throughout the site that were still on the ground and just not stockpiled. So I haven't had the experience to be involved with another site that had this type of of pollutant associated with it.

Tr. 620-21(Harsh).

Mr. Harsh arrived at the site at 9:25 am and exited at 11:00 am. CX 2. Upon arriving at the facility, Mr. Harsh "eventually" met Mr. Quirin, and confirmed that Leed did not have an

NPDES permit, a SWPPP/PPC, or other plans or procedures in place for implementing best management practices. CX 2; Tr. 423, 425-429 (Harsh). Mr. Harsh was accompanied by Mr. Ulanowski, an EPA contractor. Tr. 423-24 (Harsh). Mr. Harsh (or Mr. Ulanowski at Mr. Harsh's direction) took photographs documenting conditions at the Leed facility. CX 4; Tr. 443 (Harsh). Mr. Harsh and/or Mr. Ulanowski photographed piles of scrap iron, coke and limestone stored outdoors without coverings along the road and across from the baghouse. CX 4C; 4F; 4G; 4J; Tr. 488-90 (Harsh). Mr. Harsh testified that precipitation falling on the piles of scrap iron, coke and limestone would wash onto the road, into the storm inlets, and out the Outfalls. Tr. 490-92 (Harsh). Nearly everywhere he turned, Mr. Harsh observed and documented extremely dusty conditions. Machinery made tracks in the dust, dust obscured the groundcover, and surrounded the storm water inlets. CX 4C; 4F; 4J; 4O; 4GG;4MM; 4NN; Tr. 485-86; 487-88; 489; 491-92; 505-07 (Harsh).

Mr. Harsh again visited the Leed facility on August 19, 2003. Tr. 521 (Harsh). He was accompanied by Marilyn Gower, who is trained in collecting samples. It was not raining on the day of this inspection. Mr. Harsh and Ms. Gower took samples of solids near inlets on or near the Leed facility where storm water from the Leed facility flows. The samples were taken between 11:50 am and 12:40 pm. CX 66. The sampling locations are depicted with a brown "S" on CX 18. Sample location 1 was located near the inlet to the municipal storm sewer under Route 61 to which water flows from Outfalls 1, 2 and 3 at the Leed facility. Tr. 523-24 (Harsh); *see* Tr. 511; 517-18 (Harsh); Testimony of Dr. Jack Hwang. Sample location 2 was located at an inlet near the truck scale on the Leed facility. Tr. 524 (Harsh). Sample location 3 was located at the inlet at the end of the rock-lined channel to which water flows from Drainage Area 4 at the Leed facility. CX 5G; Tr. 524-25 (Harsh); *see* Tr. 461-63 (Harsh); Stip. Ex. 3. There was an

accumulation of material around the inlet, the configuration of which indicated that storm water flow coming down the rock-lined channel from the Leed facility had pushed the material to the area of the inlet and sample location 3. CX 5G; 5I; Tr. 531-33; 768-69 (Harsh). The results of the samples taken at these locations is as follows:

TABLE 3

Sample date	Sample taken by	Type of analysis	Sample ID	Sample location	Level of Lead	Level of Cadmium	Exhibit No.
8/19/03	EPA	Total metals	Grab Sample 1A (water)	Near sewer inlet under Rt. 61*	< 50 ug/L	< 5 ug/L	CX 66
8/19/03	EPA	Total metals	Grab Sample 1B (solid)	Near sewer inlet under Rt. 61*	1130 ug/g	4.4 ug/g	CX 66
8/19/03	EPA	Total metals	Grab Sample 1B (solid)	Near sewer inlet under Rt. 61*	464 ug/g	2.0 ug/g	CX 66
8/19/03	EPA	Total metals	Grab Sample 2 (solid)	Inlet on Leed facility just north of truck scale.**	32 ug/g	9.6 ug/g	CX 66
8/19/03	EPA	Total metals	Grab Sample 3 (solid)	Inlet at bottom of rock-lined channel in drainage area 4▲	1530 ug/g	4.6 ug/g	CX 66

* Per testimony of Chad Harsh, Tr. 522-23 (Harsh); CX 18 (marking identified as S-1). This sewer inlet is located at the bottom of the hillside southeast of Leed Foundry. Discharges from drainage areas 1, 2, and 3 on Leed Foundry flow to this inlet. *See* Tr. 508-11, 517-18, 528-31 (Harsh); Stipulated Testimony of Dr. Jack Hwang.
** Per testimony of Chad Harsh, Tr. 524 (Harsh); CX 18 (marking identified as S-2).
▲Per testimony of Chad Harsh, Tr. 524-25 (Harsh); CX 18 (marking identified as S-3). This inlet discharges directly to the St. Clair municipal separate storm sewer. A portion of storm water from drainage area 4 flows to this inlet. Stip. Ex. 3, page EPA 0163; Tr. 461-78, 517-18 (Harsh); CX 13.

During the course of the August 2003 visit, Mr. Harsh also took photographs documenting the continued generally poor housekeeping conditions at the Leed facility, and specifically the amount of dust and other pollutants available to be picked up by storm water and carried off to Mill Creek via the storm sewer.[12] *See* CX 5J, 5M, 5N, 5O, 5P, 5Q (dusty conditions and tire tracks); 5K & 5L(piles of dark material, coke and scrap); Tr. 534-46 (Harsh).

All of the dust is exposed to storm water and has the potential to be carried off site in storm water. Tr. 418-19, 538-39 (Harsh).

In sum, all of the evidence in the record demonstrates that precipitation falling on Leed's facility in fact picked up and transported pollutants present at the Leed facility. First, as stated previously, every inspector who testified stated that the Leed facility was extremely dusty, which is significant because loose dust is easily picked up and transported in storm water. Tr. 538-39 (Harsh). Analysis of samples of the dust at the Leed facility – both the baghouse waste and material on the ground that Mr. Quirin tried to convince the inspectors was not baghouse waste -- revealed high levels of lead and cadmium. Analysis of samples of storm water discharges from Outfalls 1-4 performed by Respondent's consultant revealed the presence of high levels of lead and cadmium in the storm water discharge. Stip. Ex. 1. Analysis of samples of solids in the paths taken by storm water flowing from the Leed facility and near the inlets to the municipal

[12] Mr. Harsh's inspections were in April and August 2003. Between those dates, Ms. Llewellen of DEP inspected the facility in May 2003. *See* RX 2 and discussion, *supra*. While Ms. Llewellen characterized the Leed facility as "clean" and "well maintained," Mr. Harsh's photographs and observations during both visits depict the dusty and dirty conditions at the facility.

storm sewer also reveal significant levels of lead and cadmium, thus demonstrating that lead and cadmium from the Leed facility had been transported through storm water flow to the inlets.[13]

D. Count XV – Leed Foundry Violated Sections 301(a) and 402(p) of the Clean Water Act by Failing to Apply for and Obtain an NPDES Permit for the Discharge of Storm Water Associated with Industrial Activity

There is no doubt, and in fact no dispute, that Respondent was required to obtain a stormwater permit, that it did not do so, and that it violated sections 310(a) and 402(p) of the Clean Water Act. Respondent's Answer admits that it did not seek a permit until after EPA had ordered it to do so (compare dates of Stip. Ex. 4 with Stip. Ex. 1), and Respondent's own counsel conceded liability under Count XI at the hearing. Tr. 178.

As set forth above, Section 402(p) of the Clean Water Act specifically requires an NPDES Permit for discharges of storm water associated with industrial activity. 33 U.S.C. § 1342(p). In its "Phase I" regulations, EPA defined eleven categories of industrial activities, including but not limited to, storm water discharged from grey iron foundries, such as Leed Foundry, that are as SIC 33. 40 C.F.R. § 122.26(b)(14)(ii).

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[13] To the extent Respondent at hearing sought to suggest other sources of lead and cadmium flowing to the municipal sewer inlets, Respondent offered no evidence and Respondent's suggestions are mere obfuscation. Despite Respondent's repeated references to the presence of a coal mine and the use of coal dust or cinders on nearby roads, the only evidence in the record demonstrates that neither lead nor cadmium are pollutants associated with coal. Stip. Ex. 2, page EPA 0928; Tr. 757 (Harsh). While Respondent stated that there was a landfill near the Leed facility, Respondent offered no evidence as to what was in the landfill, the boundaries of the landfill (indeed the only testimony on that point is that the boundary of the landfill extends southward off CX 18, and therefore south of the storm inlet to which some of Leed's storm water discharges (Tr. 1182 (Quirin)), or whether storm water might have been collected and retained on the landfill premises. Respondent offered absolutely no evidence that the landfill discharged lead and/or cadmium. Likewise, while Respondent offered some evidence that storm water from part of State Route 61 might enter the same sewer inlet as the discharges from Leed Outfalls 1, 2, and 3 (but NOT 4 which is not adjacent to Route 61), Respondent offered no evidence that any discharge from State Route 61 contained lead or cadmium. While Leed's property line might not extend all the way to Route 61, the hillside down which a portion of Leed's discharge flows through channelized erosion scars consists of trees and vegetation with no industrial facilities. Tr. 758-59 (Harsh). Respondent's efforts at obfuscation do not even rise to the level of creating reasonable doubt, let alone rebutting the preponderance of the evidence offered by Complainant. Moreover, the courts have held that the fact that there may have been other sources of pollution does not detract from the seriousness of Leed's violations. *See United States v. Gulf Park Water Co., Inc.*, 14 F. Supp. 2d 854, 859-60 (S.D. Miss. 1998); *Public Interest Research Group v. Powell Duffryn Terminals, Inc.*, 720 F. Supp. 1158, 1167 (D.N.J. 1989), *aff'd in part, rev'd in part on other grounds*, 913 F.2d 64 (3d Cir. 1990), *cert. denied*, 498 U.S. 1109 (1991).

When EPA established its initial multi-sector general permit for storm water discharges, EPA investigated the types of processes and pollutants likely to be generated by primary metals industries, including grey iron foundries. *See Fact Sheet for Multi-Sector General Permit,* 60 Fed. Reg. at 50877-50888.[14, 15] EPA identified a number of processes at grey iron foundries and similar facilities likely to generate pollutants available for discharge through storm water. The processes identified by EPA included many of the processes observed and documented at the Leed Foundry by the various federal and State inspectors as described *supra,* including but not limited to:

- raw material storage and handling ("[f]oundries may use scrap materials, borings, turnings, metal ingots, pigs or a mixture of these and other materials," 60 Fed. Reg. at 50878);

- storage of energy sources for furnaces ("[s]ome iron and steel foundries or mini-mills may use coke as a fuel ...," *id.);*

- storage of fluxes such as limestone added to molten metal to allow impurities to be removed ("In the iron and steel industry, limestone is probably the most common flux used," *id.*);

- storage of materials used to produce molds for the production of castings ("[a]nother common material used in casting operations is sand," *id.*);

- the use of cupolas and baghouses, *id.*

- potential for production of wastes such as "baghouse dust." *Id.* at 50879.

EPA's Fact Sheet included a table titled "Pollutants of Concern for Major Activities Within the Primary Metals Industry." The pollutants identified in this table include metals and

[14] Although DEP is authorized to implement the NPDES program in Pennsylvania and EPA is not the permitting authority for Leed Foundry, EPA's Multi-Sector General Permit is instructive because it provides context as to the regulation of industry sectors identified in 40 C.F.R. § 122.26

[15] EPA's Multi-Sector General Permit was re-issued in 2000 and incorporated by reference the description of industry sectors, including sources of pollutants and recommended best management practices. See 65 F.R. 64746, 64774 (Oct. 30, 2000).

total suspended solids associated with waste materials, such as baghouse waste and waste sand; oil and grease, metals, carbonaceous oxygen demand, TSS, and pH associated with raw material storage and handling; and slag or dross stored in piles or drums. *Id.* at 50880. The pollutants of concern identified by EPA for the primary metals industry are remarkably similar to the pollutants identified by Respondent's storm water sampling and described by DEP and EPA inspectors. *See supra* Table 3; Stip. Ex. 1.

As noted above, Leed Foundry has stipulated that it operates a grey iron foundry and has an SIC of 3321. Thus, Leed Foundry falls within 40 C.F.R. § 122.26(b)(14)(ii). Accordingly, Leed Foundry was required to seek an NPDES permit.

Leed Foundry has stipulated that it did not seek an NPDES permit until February 2004 (*Additional Stipulations of Complainant and Respondent* Nos. 4 and 5), only after it was ordered to do so by EPA. *See* Stip. Ex. 4.

The preponderance of the evidence demonstrates that Leed Foundry violated Sections 301(a) and 402(p) of the CWA, 33 U.S.C. § 1311(a) and 1342(p) by failing to apply for and obtain an NPDES permit for the discharge of storm water associated with industrial activity. From March 1, 1999 to February 23, 2004 (the date of Leed's NOI (Stip. Ex. 1), there were 1,820 days where Leed Foundry was required to obtain a permit and did not do so.

At hearing, Leed Foundry's counsel conceded liability under Count XV. Tr. 178.

E. Count XIV – Leed Foundry has Violated Sections 301(a) and 402(p) of the CWA by Discharging Storm Water Associated with Industrial Activity Without an NPDES Permit

The overwhelming preponderance of the evidence demonstrates that from March 25, 1999 to March 25, 2004 (when it finally received an NPDES permit), Leed Foundry repeatedly

discharged storm water associated with industrial activity from its facility without an NPDES permit.

First, Respondent in its Answer concedes: "Leed admits that at certain times during the referenced time period, some portion of meteoric precipitation, in the form of rainfall and snowfall, which fell on the surface of the Leed Facility flowed across and in some cases off the Facility as sheet flow, entering various surface water channels including Mill Creek. Leed denies that any such discharges are point source discharges for purpose of the cited statutory provisions. Leed also admits that a small portion of its Facility contains a storm water collection point to convey a small percentage of the sheet wash off of its Facility into existing drainage channels, and that some portion of such flow is likely to enter Mill Creek or unnamed tributaries to Mill Creek, depending on the size and duration of the precipitation event and other factors (such as temperature, rates of evaporation and evapotranspiration, soil conditions, etc.)."

Second, the Notice of Intent submitted by Leed Foundry under oath to DEP demonstrates that storm water discharged from the Leed Foundry facility on the date of sampling (November 19, 2003). Stip. Ex. 1, page EPA 0894-0895. The same document identifies the receiving water for storm water discharges from the Leed Foundry as Mill Creek. Stip. Ex. 1, page EPA 0894.

The evidence demonstrates that the storm water discharged from Respondent's facility flows in channelized paths through pipes, erosion scars and a ditch to Mill Creek. *See supra.*

The foregoing, standing alone, is sufficient evidence to establish Respondent's liability under Count XIV for discharges of storm water associated with industrial activity without an NPDES permit. In *United States v. Chemetco, Inc.*, 274 F.3d 1154, 1158-60 (7th Cir. 2001), the Seventh Circuit affirmed Chemetco's criminal conviction for discharging pollutants, including lead and cadmium, through a secret stormwater runoff control system without an NPDES permit.

The Seventh Circuit held that it was sufficient to establish a single violation, and the number of days of violation was a sentencing factor to be proved by a preponderance of the evidence, and not an element of a CWA criminal offense to be proved beyond a reasonable doubt.

Nevertheless, in addition to Respondent's admissions, Complainant has presented substantial evidence, based upon the calculations of Respondent's consultant and Complainant's expert Dr. Hwang, that Leed Foundry discharged storm water associated with industrial activity to Mill Creek on many occasions in the years prior to obtaining its NPDES permit. Use of standard hydrologic formula and rainfall data to establish discharges of storm water is well accepted by the courts and administrative tribunals in CWA cases.[16]

Respondent's own consultant estimated that the Leed Foundry discharges storm water from the facility through Outfalls 1-4 whenever there is a rainfall event of greater intensity that one one-hundreth (0.01) of an inch over a 24-hour period. Stip. Ex. 6. Outfall 4 goes directly to the municipal separate storm sewer and through the municipal storm sewer to Mill Creek.

The preponderance of evidence regarding rainfall events in the vicinity of the Leed Foundry shows that it rained at least one one-hundreth (0.01) of an inch over a 24-hour period at

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[16] *See Matter of Vico Construction Corp.,* Dkt. No.CWA-3-2001-0021 (Dec. 13, 2004), *aff'd,* 12 E.A.D. ___ (Sept. 29, 2005) (CWA App. 05-01), *appeal pending,* Dkt. No. 05-2216 (4th Cir.) (accepting runoff calculations and rainfall data as evidence of discharge of storm water from a construction site); *Matter of Smith Farm Enterprises,* Dkt. No. CWA-3-2002-0022 (May 4, 2005) (ALJ Charneski), *appeal pending,* CWA App. 05-05 (EAB) (same); *see also United States v. Chemetco, Inc.*, 274 F3d 1154 (7th Cir. 2110) (affirming district court's imposition of a criminal fine of $3,327,500 based on 676 days of violation. The number of days of violation were based on methodologies based on rainfall data and how rainfall would affect discharge from the facility's storm water runoff control system). *Cf. Waterkeepers Northern California v. AG Industrial Mfg. Inc.,* 375 F.3d 913 (9th Cir. 2004), *cert. denied,* 543 U.S. 1050 (2005) (citizen group's notice of intent to sue is adequate where notice alleged that defendant violated CWA by failing to obtain NPDES permit for discharge of storm water associated with industrial activity where facility discharges storm water during every rain event over 1.0 inches and attaching tables of local rainfall data); *California Sportsfishing Protection Alliance v. Diablo Grande, Inc.*, 209 F. Supp. 2d 1059, 1069-70 (E.D. Cal. 2002) (citizen group's notice of intent to sue is adequate where notice alleged that defendant violated CWA by violating NPDES permit for discharge of storm water associated with construction activity during every rain event over 1.0 inches).

least 417 times from March 1999 through January 2004. CX 34; Tr. 617-619 (Harsh)[17] Thus, according to the calculations of Respondent's own consultant, storm water was discharged from the Leed Foundry facility through Outfalls 4 to the municipal storm sewer at least 417 times from March 1999 through January 2004.

Taking Dr. Hwang's more conservative approach, storm water from Drainage Area 4 on the Leed facility is discharged from Outfall 4 every time there is a 24-hour rain event greater than 0.22 (twenty-two one-hundreths) of an inch. The preponderance of the evidence demonstrates that 316 rain events greater than or equal to 0.2 inches in a 24-hour period occurred between March 25, 1999 and March 25, 2004 (the date Leed received its NPDES permit, Stip. Ex. 2). Tr. 642-43 (Harsh).

Dr. Hwang also calculated that storm water from Drainage Areas 1, 2, and 3 on the Leed facility reach the storm sewer and from there go to Mill Creek every time there is a 24-hour rain event greater than 0.6 (six-tenths) of an inch. The preponderance of the evidence demonstrates that 148 such rain events occurred from March 25, 1999 – March 25, 2004. Tr. 644 (Harsh).

Accordingly, the preponderance of the evidence demonstrates that Respondent violated the CWA by discharging storm water associated with industrial activity from March 1999 through January 2004.[18], [19]

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[17] The rainfall data collected by the St. Clair Borough should be credited. Mr. Harsh testified that St. Clair Borough maintains these records in the ordinary course of business. Tr. 558-59 (Harsh). To the extent Respondent complains of an inability to test the methodology of St. Clair Borough's measurements, Complainant points out that this data (CX 34) was included with Complainant's original pre-hearing exchange filed more than five months before the start of the hearing, and Respondent had ample opportunity to investigate St. Clair Borough's rainfall data or to submit its own rainfall data. Respondent apparently chose not to do so, and Respondent submitted no evidence that the rainfall data maintained by St. Clair Borough is inaccurate.

[18] During the course of the hearing, Respondent's counsel mentioned that, sometime prior to March 1999, Respondent had paved portions of the facility and installed storm water inlets that directed storm water off the facility through Outfalls 1-4. Tr. 187 ("[I]ronically in the late 1990's as [Mr. Quirin] was working with the Bureau of Air Quality Control and Dust Management at the facility from truck traffic and other things, a recommendation

F. Respondent's Violations of the CWA Should Be Assessed the Full Statutory Maximum Penalty for Class II Cases

Pursuant to the *Consolidated Rules of Practice*, 40 C.F.R. § 22.27(b), "the Presiding Officer shall determine the amount of the recommended civil penalty based on the evidence in the record and in accordance with any penalty criteria set forth in the Act. The Presiding Officer shall consider any civil penalty guidelines issued under the Act." 40 C.F.R. §22.27(b). Outside the settlement context, there are no civil penalty guidelines issued under the CWA to provide a methodology for calculating the penalty. *See Matter of Labarge, Inc.*, Dkt. No. CWA-VII-91-W-0078 at 9 n.11 (March 26, 1997) (ALJ Greene) (*Clean Water Act Penalty Policy for Civil*

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was made to him that he should consider paving those road surfaces"). Contrary to the suggestion of Respondent's counsel, Respondent was not ordered or directed to pave its facility by DEP. *See* Tr. 993-94 (Quirin) ("And local DEP representative I believe received a couple of complaints that dust was coming off our property from truck traffic. So he suggested that we do something, perhaps water truck or whatever, but we just decided to go ahead and pave the property"). Regardless, the Presiding Officer requested that Complainant address the question of whether Respondent would have been required to obtain an NPDES permit for the discharge of storm water associated with construction activity if Respondent had not paved portions of its facility and installed runoff control. Tr. 191-92. In response, Complainant notes that 40 C.F.R. § 122.26(b)(14) states: "Storm water discharge associated with industrial activity means the discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant." It is well-established that the term "a conveyance used for collecting and conveying storm water" refers to the commonly understood nexus between the NPDES permitting requirement and a point source, and that the point source need not be a man-made piping or conveyance system. Rills, fissures, or other results of concentrated flow of water also may be considered point sources. *See Parker v. Scrap Metal Processors, Inc.*, 386 F.3d 993, 1009 (11th Cir. 2004). While conditions at the facility prior to pavement are unknown, given the facility's poor housekeeping, lack of controls, and topographic position relative to the municipal storm sewer, it is likely that the facility discharged storm water through rills, gullies, fissures and other point sources to the storm sewer and on to Mill Creek.

[19]The Presiding Officer requested that Complainant address the significance that Outfalls 1, 2 and 3 discharge to an inlet to the municipal separate storm sewer that is off Respondent's property and that some portion of the storm water from Drainage Area 4 runs to an inlet that apparently is adjacent to but not within Respondent's property. In response, Complainant first points out that Outfall 4 (to which Respondent's consultant states that all storm water from Drainage Area 4 flows (Stip. Ex. 3, page EPA 0163), is a direct inlet to the municipal separate storm sewer and is located on Respondent's property. CX 18; Stip. Ex. 3, figure 2, page EPA 0175a. The fact that other discharges of storm water from the Leed facility traverse across Leed's property line and enter a municipal separate storm sewer that is not on Leed's property is not relevant to Leed's liability. The rock-lined channel, erosion scars and roadside ditch through which Leed's storm water flows to the municipal separate sewer inlet are legally no different than any other point source. To hold that Leed is not responsible for its discharge merely because that discharge traverses through point sources on another's property would mean that Leed could simply run a pipe that trespassed on its neighbors' property and discharge directly from its facility to the municipal separate storm sewer without first obtaiing a permit. Such a result clearly would be contrary to the CWA, which imposes liability on "the discharge of any pollutant by any person" without reference to ownership of the point of discharge. 33 U.S.C. § 1311(a); *cf. San Francisco Baykeeper v. City of Saratoga,* 141 F.3d 1178 (9th Cir. 1998) (table) (1998 WL 108466) (City may be liable for storm water discharges through storm drain owned by CALTRANS if City is found to be operator).

Settlement Negotiations is to be used for settlement purposes and may not be used as evidence in a contested hearing on penalty).

The Clean Water Act requires that the following factors be considered in assessing a penalty: the nature, circumstances, extent and gravity of the violation, ability to pay, any prior history of such violations, the degree of culpability, economic benefit or savings (if any) resulting from the violation, and such other matters as justice may require. 33 U.S.C. § 1319(g). The amount of the penalty in Class II penalty cases such as this one cannot exceed $ 11,000 per day for each day the violation continues and the total penalty cannot exceed $157,500. 33 U.S.C. § 1319(g)(2)(B) (as modified by the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, as amended by the Debt Collection Improvement Act of 1996, 31 U.S.C. § 3701 note); 69 Fed. Reg. 7121, 7125 (Feb. 13, 2004).

Leed Foundry has violated Sections 301(a) and 402(p) of the CWA Water Act by failing to obtain a National Pollutant Discharge Elimination System ("NPDES") permit for the discharge of storm water associated with industrial activity from the Leed Foundry (Count 15) and by discharging storm water associated with industrial activity from the Leed Foundry to navigable waters of the United States without an NPDES permit (Count 14). Complainant seeks a total penalty of $157,500 for all CWA violations alleged in the Complaint. The nature, circumstances, extent and gravity of these violations, along with the economic benefit to Respondent, Respondent's culpability and Respondent's history of violations warrant a penalty of $157,500. The preponderance of the evidence demonstrates that Respondent has the ability to pay this penalty.

Various courts have utilized different approaches to arrive at the penalty under the CWA. One approach is the "bottom up" method, in which the court starts with the economic benefit of

noncompliance and the penalty is then adjusted for the other statutory factors. *See United States v. Allegheny Ludlum Steel Corp.*, 187 F. Supp. 2d 426 (W.D. Pa. 2002), *aff'd in part, vacated in part on other grounds,* 366 F.3d 164 (3d Cir. 2004); *United States v. Smithfield Foods, Inc.*, 972 F. Supp. 338 (E.D. Va. 1997), *aff'd in part, reversed in part on other grounds,* 191 F.3d 516 (4th Cir. 1999), *cert. denied,* 531 U.S. 813 (2000). Other courts have used the "top down" method, which starts with the statutory maximum and reduces that penalty based on any mitigating statutory penalty factors. *See Catskill Mountains Chapter of Trout Unlimited, Inc. v. City of New York,* 244 F. Supp. 2d 41 (N.D.N.Y. 2003); *United States v. Gulf Park Water Co., Inc.*, 14 F. Supp. 2d 854, 858 (S.D. Miss. 1998). Neither approach is required. *See United States v. Gulf Park Water Co.*, 14 F. Supp. 2d at 858; *Matter of Lawrence John Crescio III*, Dkt. No. 5-CWA-98-004 at 28-29 (May 17, 2001) (Biro, Chief ALJ).

Regardless of which method is used, application of the statutory factors warrants imposition of a penalty of $157,500 for the CWA violations alleged in this proceeding.

In this case, the statutory maximum penalty that can be assessed for the CWA violations alleged in Counts XIV and XV of this Class II administrative proceeding is $11,000 per day of violation or a total of $157,500. *See supra.* As stated at the hearing, Complainant seeks a total penalty of $157,500 for all CWA violations alleged in the Complaint. With respect to Count XV (failure to obtain an NPDES permit), there were 1,820 days of violation. Imposition of a penalty of $157,500 would amount to approximately $86.00 per day of violation for failure to obtain an NPDES permit. Under Count XIV (discharge without an NPDES permit), using the most conservative estimates developed by Dr. Hwang, for the period March 25, 1999 to March 25, 2004 (the date the permit issued), there were approximately 148 days where there was a discharge of storm water from Outfalls 1, 2, or 3 to the muncipal separate storm sewer and

approximately 316 days where there was a discharge of storm water through Outfall 4 to the municipal separate storm sewer. Using Respondent's consultant's calculations, there were approximately 417 days of rainfall exceeding 0.01 inches that would have caused discharges of storm water from the Leed facility. Thus, applying the statutory maximum penalty of $157,500 for this proceeding to the violations proved under Count XIV would amount to a penalty in the range of approximately $1,064 per day of violation (148 days) to approximately $498 per day of violation (316 days) to approximately $ 378 per day of violation (417 days).

1. Economic Benefit

A penalty based on economic benefit merely returns Respondent to the position it would have been in had it complied in a timely manner. Failure to recover a civil penalty at least equal to Respondent's economic benefit would mean Respondent's noncompliance resulted in an economic advantage. A civil penalty below the economic benefit threshold may encourage potential violators who will see the economic advantage in similar noncompliance.

The courts have recognized that an exact calculation of economic benefit often is not achievable. Accordingly, it is sufficient that the Court determine a reasonable approximation of economic benefit. *See, e.g., United States v. Smithfield Foods, Inc.*, 191 F.3d 516, 529 (4th Cir. 1999), cert. denied, 531 U.S. 813 (2000)("the precise economic benefit a polluter has gained by violating its effluent limits may be difficult to prove, so '[r]easonable approximations of economic benefit will suffice'") (citation omitted); *Public Interest Research Group of New Jersey v. Powell Duggryn Terminals, Inc.,* 913 F.2d 64, 80 (3d Cir. 1990), *cert. denied,* 498 U.S. 1109 (1991); *United States v. Municipal Authority of Union Twp. and Dean Dairy Products Co.,* 929 F. Supp. 800, 806-07 (M.D. Pa. 1996), *aff'd,* 150 F.3d 259 (3d Cir. 1998); *Matter of Ray and*

Jeanette Veldhuis, Docket No. 9-99-0008 (June 24, 2002 Gunning), *aff'd* 11. E.A.D. __ (CWA App. No. 02-08) (Oct. 21, 2003).

Ample evidence exists to arrive at a reasonable approximation of economic benefit to Leed Foundry. Complainant contends that $24,843 is a reasonable approximation of economic benefit to Leed Foundry for its CWA violations. Tr. 598-99 (Harsh).

Complainant's storm water inspector, Mr. Harsh, identified two types of economic benefit accruing to Leed Foundry – delayed costs and avoided costs associated with obtaining and implementing its NPDES permit. *See Chesapeake Bay Foundation, Inc. v. Gwaltney of Smithfield, Ltd.*, 611 F. Supp. 1542, 1558 (E.D. Va. 1985), *aff'd,* 791 F.2d 304 (4th Cir. 1986), *vacated on other grounds,* 484 U.S. 49 (1987) (delayed and avoided expenditure are two of the distinct types of economic benefit). Delayed costs are costs that should have been expended at an earlier date than they were actually incurred. The economic benefit of delayed costs is the time value of money. Tr. 584-85 (Harsh); Tr. 1290-91 (Meyer) (BEN model calculates present value of costs Respondent spent in a delayed fashion and then expresses that figure in current dollars, i.e., dollars as of the penalty payment date). The delayed costs in this matter are the costs associated with applying for the NPDES permit, including application fee, the cost of initial sampling, and costs associated with preparing the PPC and notice of intent. Tr. 585 (Harsh). In Stipulated Exhibit 5, Respondent provided the amounts it expended for the NPDES permit application fee ($100.00), the cost of initial storm water sampling ($953.12), and the cost of preparing the PPC plan and notice of intent ($2,343.06). Stip. Ex. 5.

In addition to the delayed costs associated with applying for NPDES permit, there were also delayed avoided costs associated with implementing storm water controls. The most obvious of these is the delayed cost of controlling discharge of storm water that came in contact

with the baghouse waste. According to its PPC, Leed chose to control discharge of storm water coming in contact with the baghouse waste by periodically removing the baghouse waste from its facility. Stip. Ex. 3, page EPA 0162. It is reasonable to approximate economic benefit by referring to the control that Leed actually described in its PPC. Indeed, given the continued dusty conditions at the facility at the time of Mr. Harsh's inspections (which occurred after implementation of periodic removal), use of removal costs as a reasonable approximation of economic benefit is conservative.

Mr. Harsh calculated a reasonable approximation of Leed's delayed monthly costs for removing the baghouse waste using Leed's average monthly cost for the year 2004. Mr. Harsh limited his approximation to 2004 because Leed began removing the baghouse dust in 2003 and therefore, Leed's 2003 costs represented the removal of several years' accumulation. Mr. Harsh believed, therefore, that Leed's 2003 costs represented costs to remove a much larger accumulation of baghouse dust than Leed would have incurred in the ordinary course of business. Accordingly, Mr. Harsh took the more conservative approach and limited his approximation to 2004, as more representative of ongoing costs. The removal cost for 2004 was approximately $32,000. Tr. 586-591 (Harsh).

In addition to delayed costs, Mr. Harsh also identified two types of avoided costs. Avoided costs are costs, including capital costs and recurring costs, that an entity should have incurred in order to achieve environmental compliance, but did not. Tr. 1287-90 (Meyer). The first type of avoided cost identified by Mr. Harsh was the cost of sampling. Mr. Harsh viewed sampling as an avoided cost based on Respondent's PPC, which states that Respondent monitors storm water run-off ***both*** during precipitation events ***and*** semi-annually: "Leed Foundry also monitors the facility's storm water run-off during precipitation events. Semi-annual sampling

events and site inspections are conducted in accordance with the requirements of Pennsylvania's General Industrial Stormwater Permit under the National Pollutant Discharge Elimination System (NPDES)." Stip. Ex. 3, page EPA 0171; *see also* Tr. 820-21 (Epps) (conceding that the PPC's representation regarding monitoring of storm water runoff during precipitation events is not limited to the requirements of the NPDES permit).

Although, as shown above, there were many precipitation events equal to or greater than 0.01 inches during which Leed should have been monitoring according to Leed's PPC,[20] Mr. Harsh conservatively estimated that Leed avoided the costs of two sampling events per year from March 1999 – January 2004. He used Leed's initial sampling cost ($953.12, *see* Stip. Ex. 5) to approximate the sampling cost avoided. Tr. 592-94 (Harsh).

In addition to avoided sampling costs, Mr. Harsh estimated other avoided costs such as regular housekeeping, training and other tasks of approximately $500 per year. This estimation, which Mr. Harsh considered "low" was based on his experience as a storm water inspector. Tr. 595 (Harsh). Thus, Mr. Harsh arrived at total avoided costs of approximately $2,500 per year. Tr. 592 (Harsh).

Once he identified and estimated Leed's delayed and avoided costs, Mr. Harsh utilized EPA's Economic Benefit Model ("BEN") to calculate Leed's economic benefit. Tr. 595-99 (Harsh). Mr. Harsh identified both a figure for Respondent's estimated avoided costs and a figure for its delayed costs. As to the first set of costs, the BEN Model "discounts" those costs to a present value. This is done by using a discount rate which is a measure of the cost of debt for that company during the relevant time period as well as a measure of the company's cost of

[20] The PPC states that Leed monitors storm water run-off "during precipitation events" in addition to semi-annual sampling in accordance with its NPDES permit. Stip. Ex. 3, page EPA 0171. Leed's consultant conceded that the PPC's representation that Leed monitors storm water run-off during precipitation events is not limited by the contents of the permit. Tr. 820-21 (Epps).

capital for that time period. The BEN Model does the same thing for the delayed costs and, for those costs takes the difference between the discounted value and the actual dollars the company finally did spend. Both the discounted avoided costs and the difference in delayed costs, which have now been determined as of the date of non-compliance are then projected forward to the penalty payment date to account for the time value of money. Tr.1290-91 (Meyer). After inputting to the BEN model Leed's estimated delayed and avoided costs, Mr. Harsh arrived at a figure of $24,843 as a reasonable approximation of Leed's economic benefit from the violations. Tr. 598-99 (Harsh).

2. Nature, Circumstances, Extent and Gravity of the Violations

One of the most important purposes of CWA penalties is deterrence – both to deter the violator from repeating the violation and to deter others from committing violations. Thus, the damage award should be greater than economic benefit, because a damage award limited to economic benefit would merely return the violator to the status quo ante. *See Student Public Interest Research Group of N.J. v. Monsanto*, 29 ERC 1078, 1090 (D.N.J. 1988) (1988 WL 156691 at *14) ("To simply equalize the economic benefit with the penalty would serve ill the possibility of discouraging other and future violations. Some additional penalty should be imposed as a sanction"); *Smithfield Foods, Inc.*, 972 F. Supp. at 352; *see also Tull v. United States*, 481 U.S. 412, 422 (1987) ("Congress wanted the district court to consider the need for retribution and deterrence in addition to restitution, when it imposed civil penalties"); *United States v. Gulf Park Water Co., Inc.*, 14 F. Supp. 2d at 862-63.

In this case, the nature, circumstances, extent and gravity of the violations were extremely serious and merit a substantial penalty due to the toxicity of the pollutants involved, the large number of unauthorized discharges over a long period of time, and the lack of controls.

The courts have held that substantial penalties can and should be awarded based on the toxicity of the discharge and the risk or potential risk of harm to the environment; a showing of actual harm to the receiving stream is not necessary. *Smithfield Foods, Inc.*, 972 F. Supp. at 344; *United States v. Gulf Park Water Co.*, 14 F. Supp. 2d at 862 ("Although no evidence was presented of actual harm, the evidence was more than ample to establish that the violations committed by these defendants over a period of more than twelve years were serious. There is undisputed evidence of potential harm to the public health and the environment posed by the discharges of pollutants by the defendants"); *United States v. Municipal Authority of Union Twp. and Dean Dairy Products, Co.*, 929 F. Supp. at 807; *Natural Resources Defense Council, Inc. v. Texaco,* 800 F. Supp. 1, 24 (D. Del. 1992), *aff'd in part and reversed in part on other grounds,* 2 F.3d 493 (3d Cir. 1993).

As set forth above, the materials with which storm water came into contact at the Leed facility contained toxic pollutants, especially lead and cadmium, at extremely high levels. Storm water coming into contact with materials at the Leed facility had the potential and in fact did carry away very significant levels of these pollutants. *See* Table 2, *supra.* Mr. Feher characterized one sample of baghouse dust as containing such a "shockingly high" level of lead that he actually checked with the analyst to make sure there had not been a mistake. Tr. 299 (Feher).

While there is no explicit effluent limitation guideline for lead and cadmium in storm water, by any known measure of potential harm to humans and the environment, the levels of lead and cadmium in the materials exposed to storm water at the Leed facility and in the storm water discharged from the Leed facility were extremely high and had potential to cause significant harm.

As set forth above, the CWA defines "toxic pollutants" as "those pollutants, or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to the Administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring." 33 U.S.C. § 1362(13). Lead and cadmium have been identified as "toxic" pollutants for purposes of the CWA by both Congress and EPA. *See* House Committee on Public Works and Transportation, *Data Relating to H.R. 3199 (Clean Water Act of 1977),* Committee Print 95-30, Table 1 – Section 307 – Toxic Pollutants (1977); 40 C.F.R. § 401.15; *see also Matter of General Motors Corp., CPC—Pontiac Fiero Plant,* Dkt. No. CWA-A-O-011-93 (June 28, 1996) (Hoya, ALJ), *aff'd,* 7 E.A.D. 465 (1997), *petition for review denied by* 168 F.3d 1377 (D.C. Cir. 1999).

In addition, lead and cadmium are identified on the priority list, developed by EPA and the Department of Health and Human Services pursuant to the Superfund Amendments and Reauthorization Act, of 100 substances most commonly found at National Priority List Sites and which the agencies detemined pose the most significant potential threat to human health. Both lead and cadmium are listed in priority group 1. *See* 52 Fed. Reg. 12866, 1269 (April 17, 1987).

The levels of lead and cadmium in the baghouse dust exceed the toxicity characteristic hazardous waste criteria under RCRA. The fact that the Presiding Officer may find that the baghouse dust is exempt from regulation under RCRA due to the Bevill exemption is not relevant to the gravity of the CWA violations. The Bevill exemption, to the extent it applies, is based on the source or process producing the waste. The fact that the baghouse dust was